THE
ATMOSPHERIC RESERVOIR
Examining the Atmosphere and Atmospheric Resource Management

New wind chill loses some bite

By Darin Langerud

It's a sad state of affairs, but one of the linchpins in North Dakota's weather folklore has lost a little shine. Come on now, admit it. How many times have you been on the phone with a friend or relative who lives in a state with wimpy winter weather and said, "it's not too bad here today, the wind chill is only sixty below," only to hear the shriek on the other end of the line? Who hasn't secretly taken some satisfaction by amazing your friends with your ability to survive in such an unforgiving climate? Well, if you looked forward to those conversations each winter, your bark has just lost some of its bite. Thanks to some new research our wind chill index isn't as scary as it used to be.

The old wind chill index was based on research conducted in the Antarctic in 1945 based on heat loss from water, not on the effects of cold air on human skin. Consequently, the values were not entirely relevant for what they were being used. A new index was needed and has been created through a collaborative effort of federal agencies, universities, the National Weather Service, and Environment Canada called the Joint Action Group for Temperature Indices (JAG/TI). Research focused on facial skin temperature cooling rates when exposed to various air temperatures and wind speeds. The result is a wind chill index that is more accurate, and generally warmer than the previous index. For example, a temperature of 5°F and a wind speed of twenty miles per hour resulted in a wind chill of -30°F under the old index, but yields a wind chill of -15°F with the new index. Another benefit of the new wind chill index is the delineation of threshold wind chill temperatures when frostbite will occur in a given amount of time. From the chart you can see not only how cold it feels at certain temperatures and wind speeds, but also how many minutes it would take to get frostbite on exposed skin in those conditions.

Research into the way wind chill affects us is still ongoing. The new wind chill index assumes a clear night sky, meaning there's no solar radiation to offset its cooling effects. Currently, researchers are studying how the warming capacity of sunlight might affect wind chill values. Data from this research will be incorporated in the index if it is discovered that solar radiation has a significant impact on wind chills.

The bottom line, regardless of what the wind chill index reads, is be prepared for cold winter temperatures and the effect they may have on you. On those cold and windy days the best way to reduce the effects of wind chill is to cover exposed skin with coats, caps, gloves, and scarves. Even though the numbers don't sound as bad as they used to, your body doesn't know the difference! ■

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WIND CHILL CHART

TEMPERATURE (degrees Fahrenheit)

WIND (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

FROSTBITE TIMES: 30 minutes; 10 minutes; 5 minutes